



A home-made drum, complete with home-made pegs is testament to the pioneering spirit of Royal Leather Industries.

Tannery of the Year: Royal Leather Industries Ltd, Lahore, Pakistan

Royal Leather Industries, which processes goat and sheepskins and cow and buffalo hides from raw to finished leather is a long-term supplier to major furniture group Ikea. The lessons it has learned from working with the Swedish group have helped it meet the demands of customers in the footwear, garment and leathersgoods sectors too.

Royal Leather Industries is a tannery making high quality suede and grain leather for footwear, leathersgoods, apparel and furniture close to the Pakistani city of Lahore. It has a well earned reputation in that country for being a pioneer. Incorporated in 1986, it was 1989 before the drums started turning in the tannery; the company took its time buying up land in the village of Sheikhpura, around 35 kilometres from Lahore, and constructing the buildings, which are spacious and neatly laid out, with clear signage and an easy-to-follow production flow.

The tannery is currently (in the winter of 2013) producing around 1.2 million square-feet of finished leather per month, which is close

to its average, but short of maximum capacity (tanning is affected by the seasons in Pakistan and peaks around the time of major festivals such as Eid al-Adha). The range includes goat, buffalo, sheep and cow leather. The cow and buffalo hides the tannery buys are from Pakistan, while many of the goat and sheep come from Australia.

From 2013, Royal Leather believes bovine's share of the total production (currently only 10%) will increase, for seasonal and sociological reasons. The country's cow population appears to be growing faster than the number of buffalo. And at the time of Eid al-Adha, when families that can afford it have to buy their own animals for slaughter for the feast, cows are becoming a more



popular choice. The regulations stipulate one goat or sheep per adult, but a single cow is enough for six adults, so big families are finding that a cow can represent better value. More cow hides will, therefore, become available on the local market. At the time of Eid al-Adha, the volume of raw material increases considerably and production levels go up accordingly. A further issue is that the Islamic calendar does not match up with the Gregorian calendar and the feast is moving closer and closer to the warmest months. Falling in late October in 2012, the date of the celebration will move 'backwards', as it were, towards the summer months by around two weeks per year. This means that, by 2018, Eid al-Adha slaughter will be happening in the heat of August, causing concerns for raw material preservation.

The local buffalo material in particular is of good quality; the Nili-Ravi and Kundi breeds, both raised for dairy, are the most common. Lahore's University of Veterinary and Animal Sciences (UVAS) refers to buffalo as Pakistan's "black gold". The city has its own hide market, to which traders bring hides and skins from surrounding towns and villages for sale in lots. Royal Leather's perception is that the material is categorised fairly and the bidding is transparent. But raw material is expensive in Pakistan at the moment, as it is everywhere, and tanners talk of having waited the last three years in vain for raw material costs to stop absorbing all their profit.

In total, 60% of the finished leather the company makes goes into footwear production, with shoe manufacturers in Japan, China, South Korea, Portugal and other markets snapping up its kid upper, kid upper nappa, goat destroy and goat cloudy articles. Garment manufacturers buy 15% of Royal Leather's output at the moment, with goat nappa, goat 'destroy', sheep nappa, suede, and polished nubuck from buffalo hides among the most popular products; one of the more unusual apparel lines a Royal Leather customer (in Pakistan) has made is a range of goat-suede lederhosen for sale in Germany and Austria. A further 10% of the company's production goes into furniture and the remaining 15% into leathergoods and gloves. Recent innovations that have helped maintain its standing among customers include conductive leather for use with smartphones and cool leather for motorcycle clothing and gloves.



Director of production and chief technician, Imdad Hussain, who has worked at Royal Leather Industries since its launch and is its driving force for innovation.

Open house

Royal Leather is a public limited company, and it took a very public approach to sharing information and the lessons learned when it opened a new effluent treatment plant in 2006. "We wanted other tanners in Pakistan to see it, to emulate what we had done, but without repeating the mistakes we made," says director of operations and marketing, Agha Saiddain. "By definition, pioneers go first and can easily make mistakes."

Benefits outweigh any mistakes, though. The long list of pluses that the company believes it has accumulated from the exercise includes becoming more responsible as a business, helping the tannery to reduce its impact on the environment, boosting its image at home and abroad, earning it awards rather than warning letters from the country's Environmental Protection Agency, accelerating growth and helping attract the attention of some big-name customers. In addition, Mr Agha says Royal's efforts have helped the Pakistani tanning industry earn from the World Bank the accolade that leather production is the only industry sector in the country that is environmentally conscious.

"I've written to our government to say that demands here are very high," the operations director says, "stricter than those of other countries." Pakistan has an effluent COD

standard in surface waters of 150 milligrammes per litre. This is stricter than the limits in India, Argentina, Indonesia, Turkey and many other leather-producing countries. It is twice as strict as the limit in the Czech Republic, which, Mr Agha points out, has a gross domestic product per capita that is more than nine times higher than Pakistan's.

Sound logic

To the outside observer's eye, two of the factors that have helped Royal Leather cement a logical flow-through from raw hides and skins to finished product are the management team's background and the lessons the tannery has learned from its most prominent customer.

Mr Agha typifies this. After a law degree, he completed an MBA and worked for a time as a consultant, developing a strong interest in another traditional industry in Pakistan, wool production for carpets. Following success in these ventures, the group wanted to diversify and he chose to lead it into the leather business. His reasons are interesting. "I always did well at the difficult subjects at school and badly at the easy subjects," he says. "It was the same in law school. In the leather business, buying is difficult, production is difficult and selling is difficult, so I wanted to take on leather. And when I started looking into the leather sector, it was

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From a technical point of view

(1) Raw material handling

Currently the company buys in 110,000 goat skins every month, 60% of its total production, 10,000 buffalo hides (20% of production), 20,000 sheepskins (10% of production) and 5,000 cow hides (the remaining 10%). The raw material store on the site usually holds enough raw hides and skins for four or five days' production but enough wet blue stock for six months. Supply arrives in a constant flow.

(2) Europe for machinery and chemicals

For its tanning machinery, Royal Leather says it relies on technology from Europe (mostly from Italy, Germany, the Czech Republic and France) because it does not want to compromise in this area of its operations. It has, for example, recently installed a new splitting machine (from Arzignano-based Alpe). This is a direct response to the increase in production of cow leather that it will experience in the coming years. But Royal Tanneries has other machinery aces up its sleeve that are very much made in Pakistan. Abid Raza Bokhari, the company's maintenance engineer is one; director of production and chief technician, Imdad Hussain, is the other. Quietly spoken Mr Bokhari clearly has a keen understanding of all the machinery on site, not least because he designed and made most of the equipment that did not come from Europe. This includes five liming and ten tanning drums, and even the pegs inserted into them to prevent hides from becoming tangled. All of this is his work, and that of the workers he has in place in on-site maintenance and carpentry workshops.

One of Mr Bokhari's successful inventions is a machine that compresses wet blue shavings into cakes. The compressed cakes require far less storage space than the shavings would on their own, and such is the benefit that Royal Leather is building an identical second machine. Manufacturers in the neighbourhood are consuming the cakes in their production of leatherboard. A heat-storage machine that works on the basis of a contraflow system is also of great value to the



Sorting skins at the wet blue stage.



A new Alpe splitting machine will help the tannery cope with an increase in bovine hide production.



The raw material stocks are sufficient for five days' production.



Royal Leather's maintenance engineer, Abid Raza Bokhari, with dust-cakes made from hide shavings using a machine he invented. He also made all the tannery's drums himself.



tannery. "I didn't make that one," he says modestly. "I only designed it."

For chemicals, Royal Tanneries says it again prefers to buy supplies from Europe. Its intention is to prevent the presence of any hazardous substance in its finished leather, which it believes it can do more assuredly using chemicals from European companies rather than rival products from Asian suppliers. It has few supply problems because it sticks to agreed minimum order quantities.

(3) Overview of production

After trimming and salt removal, raw hides and skins go for soaking and tanning, followed by sorting of the wet blue stock by size and grade. After samming, splitting, shaving and trimming, the wet blue goes for retanning, then setting out of the crust before drying. Setting out machines from France still bear the name Mercier Frères and pre-date the name-change of the Annonay-based company to Turner in 2001, but are in good working order. The tannery has both vacuum- and hang-drying facilities in place; the vacuum-dryer is made by Finnish machinery provider, Finvac.

Following this, the crust goes through another tried and tested machine, a Svit Molissa system, to flatten and soften the skins and prepare them for staking and buffing. For buffing, the tannery has a Bergi machine in place.

There are 13 dry-milling drums in total, with, in some cases, ItalProgetti control systems to help run them as efficiently and as effectively as possible, although the drums are, like all the drums at Royal Leather, home-made (even if they do not look it).

In the finishing department, there is a roller-coating machine and three spray-coating machines from German manufacturer TTH. To avoid the problem of small skins such as sheep and goat slipping between the wires, the manufacturer has supplied a special mesh that sits on top of the string conveyor. Further along the finishing production line, there is a Tomboni embossing machine, a couple of Bergi polishing machines reconditioned by Alpe and a slightly older embossing machine from Svit, which is still in working order, having been built to last.



Still in good order. A setting-out machine from Mercier Frères.



Hang-drying of goatskin crust.



Chemical storage.



Special mesh on a spray-coating machine to prevent small skins from slipping through.



A chrome recycling project paid for itself in two years.



Research and development manager, Abrar Ahmed, with an anaconda skin he experimented on.



The tannery's wastewater treatment plant opened in 2006. Tanners from all over Pakistan were invited to visit, to learn and to copy what Royal Leather had done.

(4) Chrome recovery

Before the wastewater goes to the treatment plant, the tannery recovers chrome for re-use in production. Chrome recovery has been in place since 2001. The management team has calculated that the savings it has achieved by re-using recovered chrome allowed it to recoup the cost of the chrome recovery plant within two years. The savings continued, naturally, with chrome-recovery contributing an estimated \$40,000 to the bottom line between 2008 and 2012. Ongoing commitment to innovation means a new project is under way, this time to instal solar panels to help ease the problem of energy shortages and high costs in Pakistan. Hopes are that the solar energy operation will be up and running some time in 2014.

Fleshings go at present to contractors in Pakistan who use the extracted fat in the manufacture of soap, and raw trimmings go to local producers of adhesive, while shavings go to leatherboard manufacturers. The dust-cakes produced by the in-house produced compressor machine is in demand among manufacturers of paper and cardboard with whom Royal Leather shares the Sheikhpura location.

(5) Research and development

The in-house research and development team has worked hard on developing new tie-dye techniques for applications such as handbags and other leathergoods, combining bright colours and eye-catching patterns. The team leader, Abrar Ahmed, has an eye for the unusual. Local villagers recently killed an anaconda, fearful that it might attack someone. Mr Ahmed asked for the skin and made it into leather, dyed saffron yellow, but with the marking's of the snake still clearly visible. He is proud of this piece of work, even though a regular supply of snakeskins would be hard for Royal Leather to secure. He intends to keep it and show it to potential customers as an example of the work the tannery is capable of carrying out. The research and development department occupies a newly renovated and brightly lit part of the premises and investment in testing and laboratory equipment is ongoing. Already in place are machines for testing for heat-resistance, lightfastness and abrasion resistance.

(6) Primary effluent treatment and waste management

The effluent treatment project, which attracted the attention of tanners in all parts of Pakistan when the plant opened in 2006, began in 2004 and meant an investment of around \$600,000 in total (the tannery received support from the Dutch embassy in Pakistan for the project); it has the capacity to treat 700 cubic-metres of effluent per day.

The effluent treatment plant is within 35 metres of the tannery, but the two facilities are divided by a road and by a stream carrying effluent from various manufacturing facilities (mostly for paper products) in the vicinity. None of the tannery's effluent mixes with this waste. A strong odour from the stream vanishes immediately upon crossing into the Royal Leather treatment facility, which has plants and trees along the whole of its perimeter, some of them are flowering shrubs donated by customer organisation Ikea.

Primary treatment involves piping effluent from a collection tank in the tannery. A 30-centimetre diameter pipe crosses the stream but is strong and secure enough for there to be no cross-contamination. Filters with 20-millimetre holes at the end of



the pipe take out any large particles of solid waste.

First the filtered effluent flows into a large, hexagonal equalisation tank where aeration takes place followed by primary clarification. The sludges generated are transferred to dewatering beds for drying by filtration and evaporation to form dry cakes of sludge. The tannery has four sedimentation tanks at its disposal. This sludge-drying process works well; in the summer months the temperature here can reach 48°C.

(7) Secondary treatment

Primary treatment had been in place since 2001, but the new project added secondary treatment with two tanks of 18 metres in diameter and five metres in depth. Aeration takes place again and a biomass is created, resulting in secondary sludge.

The secondary treatment and primary treatment areas are connected by a 50-metre underground pipe. Discussions are taking place on using sludge and wastewater from the tannery as fertiliser. An agency called National Environmental Consultants (NEC) is working on this after tests on a rice field a few years ago suggested better growth and better grain quality. Nothing, it seems, goes to waste in Pakistan: everything that has a use will be put to use. While the fertiliser investigation awaits completion sludge from primary and secondary treatment goes to a special landfill site near Lahore.

(8) Water recycling

Royal Leather set up an electrolysis process to make the water even cleaner after secondary treatment, but it has found that it can use the recycled water perfectly well in its tanning production without electrolysis. Its belief is that using electrolysis when it does not need to would be an unnecessary waste of energy. A pipe takes the recycled water back to a receiver tank in the tannery for use in the tanning process. This means the company uses less fresh water in its production than it would otherwise have to. Its fresh water comes from an aquifer and is available in good quantities. This water comes from a depth of more than 150 metres, so pumping less of it to the surface is also a way of saving energy. At the moment, the company is able to recycle around 60% of the water it uses, mixing the recycled water with fresh supplies from the aquifer. It finds this perfectly adequate for operations such as soaking and tanning. For its dyeing operations it uses only fresh water. ☺



Sludge-drying beds work well in temperatures that can reach 48°C.



Before, during, after. Water from the wastewater treatment plant is clean enough to go back to the tannery for re-use in production.

easy to see that most businesses were family-run and that professionalism was lacking. I believe in professionalism; they [family-run businesses] believe in family. But when you don't believe in professionalism and trust only the family, your business will never grow."

The second factor in making it possible to have a smooth flow of hides from raw to wrap in Royal Leather is the work it has been doing since 1992 with its biggest-name customer, furniture retailer Ikea. The relationship started with a visit from Ikea representatives to the Royal Leather stand at the APLF exhibition in Hong Kong at the

start of the 1990s. Before long, Mr Agha was making up samples and taking them to Sweden to present to the furniture company. Between 2002 and 2011, Royal Leather's annual sales to Ikea have increased by about 60%. The tannery is still in a strong position as an Ikea supplier. "We are the only supplier in South-East Asia with lead times of one week," Mr Agha explains. "The order comes from Sweden, and within one week, we have delivered the leather to Ikea's freight-forwarder in Karachi. In the last five years, our delivery performance, in terms of on-time arrival of the shipments, has been 100%, 100%, 100%, 99.7% and 100%."

Questions of quality

On top of accreditation under ISO 14001 and ISO 9001-2000, the tannery won accreditation under Ikea's Iway quality programme in 2012, an accolade that only its top suppliers earn and one which no other supplier of leather in the region (Pakistan and India) can lay claim to. Others have begun to go down the Iway path but have been put off by the cost and the level of difficulty. Mr Agha makes it clear that supplying such a large customer is hard work; it keeps raising the bar and frequently exercises its right to audit the tannery unannounced any time, day or night.



However, he says everyone at Royal Leather has benefited from the experience.

The company's quality manager, Muhammad Zeeshan, attends frequent training courses run by Ikea in Karachi for all its Pakistani suppliers. He brings back what he learns, module by module, and shares the ideas and new obligations with his colleagues. One recently completed module concentrated, from an Ikea point of view, on how encouraging suppliers to look at quality and cost issues is one of its main tools for delivering on its corporate commitment of offering good quality products at low prices so that as many people as possible will be able to afford them.

Mr Zeeshan explains that the lessons Royal Leather has taken from its exposure to these Ikea theories include the need to view the teams in different parts of the tannery as internal customers. He insists that this makes a difference. At the same time, the business has learned to apply what Ikea calls '1-10-100 logic'. He explains: "This means that if you make a mistake in one area of the tannery and you find it quickly and correct it, it will cost a certain amount of money, referred to as '1'. If it takes you a long time to find it because you don't have people looking in the right way for ways to improve, it will cost you ten times more than the original sum. And if you take no action and it's a customer who finds the flaw, it will cost you 100 times more. That's 1-10-100." Ikea is quick to share the details of any product returns that it experiences of items that come from all suppliers, as well as information as to why the consumer was dissatisfied.

It's a commitment to finding and eliminating faults early that has made Ikea the subject of a case-study at Harvard Business School, Agha Saiddain points out. He quotes an academic who has put forward the idea that creative people are valuable to all organisations, but that innovators, the people who transform creative ideas into real products, are even more valuable. "Creative people used to be hard to find," the Royal Leather operations director goes on, "but with the internet, I think you can find them much more easily now. The real asset is the innovator, the person who can give a creative idea a practical shape. Ikea is an innovator: it comes up with ideas and it implements them. It looks easy, but if it were, everyone would be as successful as Ikea." He describes Ikea as having helped Royal

Leather become more environmentally friendly, more socially responsible, more quality conscious and more competitive. "Ikea made us as a company," he says.

Market appeal

Ikea aside, important customers include the Dallas fashion group from South Korea, a big buyer of goat suede from Royal Leather for use in apparel that it exports to the most important consumer markets in the world, including the US. Also in the leather garment arena, Hong Kong-based Pearl Line buys the tannery's leather to make its clothes, with goat suede, goat 'destroy', some metallic finishes and, especially, nubuck style with a slightly polished effect among its favourites.

Mr Agha believes that messages celebrating the qualities of leather resonate strongly with consumers in his country and many other parts of Asia. "Leather breathes," he says. "It gives comfort. In hot weather you cannot feel comfortable in shoes made from synthetic materials, only in leather shoes. And people still feel proud to wear leather. And not just in Pakistan. The big European brands would never be able to secure the high prices they achieve if they began to make their products from synthetic materials. There is pride, even at the very high end, in using leather and we who make leather must do everything we can to maintain that pride."

When the subject of campaigns against leather comes up, he draws on his legal background when formulating a counter-argument. "This is very simple," he says, quoting influential New Zealand jurist Sir John William Salmond. "For a crime to take place, there has to be the act, but there also has to be the 'mens rea', the guilty mind. Greenpeace criticises the leather industry for links to deforestation in the Amazon, but did farmers there have leather in their minds when they began clearing land in the rainforest? Of course not. They aimed to earn money from beef or milk. The hides are a by-product. They are not raising mink or fox, but cattle, animals that are never raised for their skins."

He has faced questions about Islamic practices for animal slaughter that some western customers thought cruel. He quotes a German study that criticises the use of stun-guns in abattoirs and which suggests ritual slaughter procedures such as those in use in Islamic and Jewish communities

inflict the least pain on the animals. He has also been questioned about the practices in place in Pakistan for transporting animals from farm to abattoir. His answer is that while packing animals into old trucks does not constitute luxury transport, it's not uncommon to see people travel in similarly cramped conditions in Pakistan. Plus, he insists the distances over which traders transport animals are relatively short, certainly compared to China or India.

This isn't meant as a criticism of Pakistan's neighbour to the south. Mr Agha believes that proposals, which have come formally from the Indian Council for Leather Exports, for tanners from Pakistan to have a presence in the mega-clusters the Indian government is helping the leather industry establish across the border, are "premature". Business with such a large neighbour would be attractive, but he says things need to "settle down politically" before the leather sector and most other areas of business could contemplate trying to set up new cross-border ventures.

Social policies

Buses take the workers at the tannery to and from their homes, mostly in the villages surrounding Sheikhpura. The company has around 800 employees in total, of whom around 150 work in a special stitching unit in Lahore. Other benefits of working for the company include an annual lottery among the employees with the winner going on an all-expenses-paid trip to Mecca for the Hajj pilgrimage, although on one recent occasion, the workers, collectively, agreed that the money for this should go to a colleague who needed special treatment for a kidney problem. For Christian workers in the tannery, there is a cash prize. Separately, a ballot with free bicycles as the prize has given some of the workforce their own means of transportation. In another gesture it has provided grants to workers at the time of the marriage of a daughter, which often proves very expensive in Pakistan.

Twice a year, around the time of major festivals, the whole workforce and management team sit down to have a special celebratory dinner together, but good food at heavily subsidised prices is available every day in the canteen, which is owned and operated by an external contractor. A typical menu would consist of vegetables, rice and beans, with meat three days per week. There is also an oven to



make sure the chapattis are fresh. A hot lunch along these lines will typically cost each worker the equivalent of US\$15¢.

Each department has its own qualified first-aid officers who have easy access to first-aid materials in cabinets located on the walls throughout the tannery.

Local organisations to benefit from charitable donations from Royal Leather include the Shoukat Khanam cancer hospital in Lahore, specifically for the treatment of the poor, and also the city's Jinnah Hospital.

In 2005, Mr Agha signed off a project with UVAS, which examined disease amongst the ruminants of the province of Punjab. The surprising result of the research was that buffalo seem to suffer less skin damage than cows, helped by the fact that parasites such as warble fly don't seem to like the buffalo. When the research was published, no less a figure than the country's then-president, Pervez Musharraf, attended the ceremony and took a moment to meet and talk to those involved. When Mr Agha had the chance to talk to the president about his company or his industry, he chose not to. Instead, he asked him to pass a law making it a criminal offence for parents not to send their children to school. He recalls that the president's response was to say that Pakistan had too few schools to accommodate all its children if they all began turning up for lessons.

For the weak and the poor

Almost eight years on, this incident plainly still upsets Mr Agha. He says he doesn't believe official literacy statistics, which, according to a 2009 estimate, suggest 54.9% of people above the age of 15 in Pakistan can read and write. He thinks the true figure is lower. Practising what he preaches, he has put together school-sets for the children of Royal Leather workers, materials to make it easier and more affordable for the children to make the most of the educational opportunities available. "When they have access to education, Pakistani people are very intelligent," he insists, and points to Nobel laureate for physics (in 1979), Dr Abdus Salam, as an example. He came from a rural community, but encouraged by his father, an education officer, he developed a passion for learning and went on to great things.

Mr Agha's passion is in growing his company and the leather industry more generally in Pakistan because of the



Royal Leather operations director, Agha Saiddain, says the industry should make more of the benefit it can bring to humanity.

difference it can make to the lives of some of the weakest and poorest members of society there. "If leather grows, it's the poorest in our society who will benefit the most," he says. "By my calculation, if you include farmers, abattoir workers, those who carry out the salting of hides, those involved in transportation and, of course, tanners and finished product manufacturers, this industry is responsible for a million jobs in Pakistan and that is very important. Yes, we need to guard against doing any damage to the environment, but we also need to be more conscious, in my opinion, of the benefits we can bring to humanity."

He explains that the recent history of leather production is that it moves from place to place; cheap labour has been a much more important factor in this than available hides and skins because hides and skins are relatively easy to transport around the world—tannery workers are not. But moving production to where labour is cheap is another way in which the leather industry helps humanity, bringing work to developing economies, putting food on families' tables, shoes on children's feet and schoolbooks in their hands. How quickly spoiled people in wealthy countries can forget the things that really matter to most of the human race.

In that spirit, Mr Agha says he would like to see tanners in the most developed economies share their technological advances more readily with their counterparts in the developing world. For example, he believes it would do nothing to detract from the advantage Italian tanners have, thanks to their ability to add value and meet the demands of high-end fashion, if they were to share research into hazardous substances and techniques for managing them. "If it's good for the globe, they should share the information with everyone," he argues. "It's the same with water conservation and carbon footprint. The earth is the real beneficiary of the research tanners in Europe have carried out and, because the earth is for all, they should disseminate that information without any bias. That's what we tried to do with other tanners in Pakistan when we opened our wastewater treatment plant."

He says that if a business makes money by harming the environment, it would be better to shut it down. And the same goes for any business that makes money by treating its workforce badly. "It really would be better to close it down," he insists. "If I failed to pay a fair wage to my workers, I would be taking money from the pockets of the poor." 🌍